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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,913	09/28/2001	Jerome J. Johnson	COMP:0241 P01-3647	4231

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EXAMINER

MOAZZAMI, NASSER G

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 10/06/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

pre

Office Action Summary	Application No. 09/965,913	Applicant(s) JOHNSON ET AL.	
	Examiner Nasser G Moazzami	Art Unit 2187	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 17 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-70 is/are pending in the application.
- 4a) Of the above claim(s) 20-70 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) 20-70 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 20-70 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected claims, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 4.

Specification

2. Claims 1-19 are being examined in this application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 9-11, and 15-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Cho et al., hereinafter Cho (U.S. Patent No. 6,625,685).

As for claims 1, and 11, Cho teaches a memory system and method of processing a read request comprising the acts of: transmitting a first read request from a requesting device, the first read request comprising a first system address **[transactions from the one of the devices (column 1, lines 12-13)]**; receiving the first read request at a memory controller **[memory controller receiving an access request]**; mapping the first system address into a first memory address, the first memory address comprising a first chip select, first bank address, a first row address and a first column address **[first portion of the address is a row address, the second portion of the address is a column address (column 1, lines 19-21); memory controller may provide a separate select signal (column 1, lines 26-29); portion of the address is used to select a bank (column 2, lines 44-45)]**; sorting the first read request by one of the first chip select and the first bank address such that the first read request is injected into a first read queue **[transaction queue 30 (see Fig. 2)]**.

As for claims 9-10, and 15-16, Cho discloses that the chip select identifies a corresponding DIMM to which the request is directed **[by asserting the chip select, the corresponding DIMM is selected (column 7, lines 47-49)]** and bank address identifies a corresponding bank in a corresponding DIMM to which the request is directed **[selecting a bank within the SDRAMs within the selected DIMM (column 8, lines 9-10)]**.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-8, 12-14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al., hereinafter Cho (U.S. Patent No. 6,625,685) in view of Nakagawa (U.S. Patent No. 5,701,434).

As for claims 2-8, 12-14, and 17-19, Cho teaches the claimed invention, including that the second chip select identifies a corresponding DIMM to which the second request is directed and a second bank address identifies a corresponding bank in a corresponding DIMM to which the second request is directed **[by asserting the chip select, the corresponding DIMM is selected (column 7, lines 47-49); selecting a bank within the SDRAMs within the selected DIMM (column 8, lines 9-10); and a plurality of SDRAM [see column 7, lines 38-40], however Cho fails to specifically teach a second queue for the second read request and an arbiter for alternating the read requests from the first and second queues, so that back-to back requests are processed from the first and second queues to the different chips and banks as being recited in claims 2-6, 12-14, 17, and 19.**

Nakagawa discloses a interleave memory controller, wherein a separate queue is provided **[see elements 71-73 of Fig. 3]**, wherein consecutive read memory access requests to different address in a bank or different bank is supported **[see column 3,**

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lines 52-67; and column 6, line 25 bridging column 7, line 11] in order to increase access speed time.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time of the current invention to use separate queues as being taught by Nakagawa into Cho's memory controller in order to increase access speed time.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,427,196 (Adiletta et al.)

U.S. Paten No. 6,341,318 (Dakhil)

U.S. Patent No. 6,223,301 (Santeler et al.)

U.S. Patent No. 6,212,590 (Melo et al.)

U.S. Patent No. 5,204,964 (Bowden, III et al.)

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nasser G Moazzami whose telephone number is (703) 305-0017. The examiner can normally be reached on 7:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Donald Sparks can be reached on (703) 308-1756. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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9. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 746-7240.

Nasser Moazzami
09/28/2003

